

## **Weimer, Noreen**

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**From:** Novak, Dion  
**Sent:** Tuesday, November 04, 2014 3:10 PM  
**To:** Weimer, Noreen  
**Subject:** FW: Valleycrest - Work Plan for Supplemental Groundwater Sampling  
**Attachments:** Cor07-18-14 (epa) suppl gw sampling.pdf

Email with workplan attachment

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**From:** Mike Samples [mailto:mikes@demaximis.com]  
**Sent:** Friday, July 18, 2014 10:28 AM  
**To:** Novak, Dion  
**Cc:** Michael Miller; Steve Siegel; Scott Glum  
**Subject:** Valleycrest - Work Plan for Supplemental Groundwater Sampling

Dion,

As we discussed recently, the Group has preliminarily authorized CRA to perform a supplemental groundwater sampling event at the Site and would like to take into consideration any feedback you might have on the Work Plan (attached).

Thanks,  
Mike

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Michael H. Samples  
*de maximis, inc.*  
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July 18, 2014

Mr. Dion Novak  
Remedial Project Manager  
U.S. EPA – Region 5  
Superfund Division (SR-6J)  
77 W. Jackson Blvd.  
Chicago, IL 60604

**SUBJECT: Supplemental Groundwater Sampling  
North Sanitary Landfill Superfund Site**

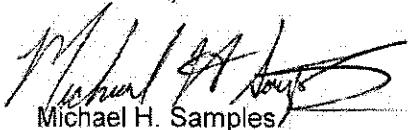
Dear Mr. Novak:

On behalf of the Valleycrest Landfill Site Group (Group), we are writing this letter to inform you that the Group has preliminarily authorized Conestoga-Rovers & Associates (Contractor) to perform a supplemental groundwater sampling event at the North Sanitary Landfill (Site). It has been eleven years since a comprehensive groundwater monitoring event was performed at the Site (March 2003). A limited event was performed five years ago (October 2009).

Field sampling procedures, analytical parameters and the handling of investigation derived waste will all be consistent with the protocols utilized during the remedial investigations performed previously at the Site. Attached is a Work Plan for the sampling event that contains additional details.

Copies of analytical data from this sampling event will be shared with U.S. EPA upon request. For planning purposes, if you have any comments on these activities, please let us know at your earliest convenience, but no later than August 8, 2014.

Sincerely,  
*de maximis, inc.*



Michael H. Samples  
VLSG Alternate Project Coordinator

Enclosure

MHS/

cc (via e-mail, w/ attachment):

Scott Glum, Ohio EPA  
Steve Siegel, VLSG Common Counsel  
Mike Miller, Project Coordinator  
VLSG Distribution

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Allentown, PA • Clinton, NJ • Greensboro, GA • Knoxville, TN • San Diego, CA  
Sarasota, FL • Houston, TX • Windsor, CT • Waltham, MA





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## MEMORANDUM

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To: Mike Samples REF. NO.: 016816-11  
FROM: Ian K. Richardson/John Buyers/kf/369 DATE: July 14, 2014  
RE: **Work Plan for Leachate and Groundwater Monitoring  
North Sanitary Landfill, Dayton, Ohio**

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### 1.0 Introduction

A round of leachate and groundwater monitoring will be performed for the purposes of:

1. Potentially supporting an argument that Monitored Natural Attenuation (MNA) should be included as a component of the remedy that is implemented at the Site in lieu of active leachate collection
2. Characterizing the leachate/groundwater that may be extracted and disposed as part of the remedy, to aid in determining the potential need for pretreatment

The rationale for the monitoring locations, parameters, field procedures, and reporting is discussed below.

### 2.0 Monitoring Locations

Monitoring locations will include:

1. All Site wells within and beyond the extent of MCL/background exceedances at and beyond the proposed groundwater point of compliance (POC) during the most recent monitoring, for the purposes of:
  - i) Assessing current POC compliance
  - ii) Disposal characterization under Alternative 2a's perimeter leachate extraction concept
2. A sufficient number of other wells to provide spatial coverage along the proposed POC
3. A sufficient number of spatially representative leachate wells for natural attenuation (NA) evaluation and disposal characterization under an interior leachate extraction scenario

Specific monitoring locations within each aquifer unit were selected as discussed below. The ability to sample the locations will be subject to well condition and access to off-Site locations.

## **2.1 Local Northeast Aquifer (LNA) and Upper Aquifer (UA)**

Figure 1 depicts features in the LNA and UA including all leachate and monitoring wells, the extent of MCL/background exceedances beyond the proposed POC during the most recent monitoring, the proposed perimeter leachate extraction system concept under Alternative 2a, and the proposed interior leachate extraction system concept under Alternative 3a. Eight leachate wells, two LNA monitoring wells, and 24 UA monitoring wells will be monitored as highlighted on Figure 1 and listed in Table 1 with their selection rationale.

## **2.2 Main Aquifer (MA)**

Figure 2 depicts features in the MA including all monitoring wells and the extent of MCL/background exceedances beyond the proposed POC during the most recent monitoring. Fifteen MA monitoring wells will be monitored as highlighted on Figure 2 and listed in Table 1 with their selection rationale.

## **3.0 Monitoring Parameters**

Monitoring parameters were selected to facilitate assessment of:

1. POC compliance
2. NA indicators
3. Disposal characterization

Selection of POC compliance and NA indicator parameters is discussed in Section 3.1. Selection of disposal characterization parameters is discussed in Section 3.2.

### **3.1 POC Compliance and NA Indicator Parameters**

The NA evaluation contained in Appendix H of the approved March 2011 Feasibility Study Report selected chemicals of concern (COCs) for the Site based on exceedance of MCLs (or Site-specific background where higher) at or beyond the proposed POC. COCs selected for the LNA/UA and MA are shown on Figures 1 and 2, respectively, and include:

LNA:	none
UA:	benzene (BZ), trichloroethene (TCE), vinyl chloride (VC), arsenic (As), and barium (Ba)
MA:	As, Ba

Based on this, TCL Volatile Organic Compounds (VOCs), arsenic, and barium will be analyzed in all groundwater samples. This will facilitate assessment of compliance for parameters that have exhibited MCL/background exceedances at and beyond the proposed POC during the most recent monitoring, and their degradation products.

Additional NA indicator parameters include:

- Nitrate
- Iron (total and dissolved)
- Manganese (total and dissolved)
- Sulfate
- Gases (ethane, ethene, methane)
- Field parameters (dissolved oxygen [DO], redox potential [ORP])

### 3.2 Disposal Characterization Parameters

The City of Dayton (City) website contains its "Local Limits for the Discharge of Wastewater Under the Industrial Pretreatment Program"<sup>1</sup> dated August 18, 2004. On March 30, 2010, the City provided the following proposed limits for discharges to the sanitary sewer (email from Michele Simmons at the City to Mike Samples at *de maximis*) and recommended that the proposed limits be used for planning purposes in the FS Report:

<i>Parameter</i>	<i>Proposed Discharge Limit (mg/L)</i>
Arsenic	63.410
Cadmium	3.041
Chromium	19.444
Chromium - Hexavalent	none
Copper	8.169
Cyanide (total)	0.464
Lead	32.103
Mercury	0.0028
Molybdenum	16.270
Nickel	12.161
PCBs	0*
Selenium	none
Silver	0.617
Zinc	7.881
Sulfate	narrative
Sulfide	narrative

\*City staff indicated on March 30, 2010 that, if any PCBs are detected, then discharge would not be approved

Disposal characterization samples will be analyzed for the above list of parameters.

<sup>1</sup> <http://water.cityofdayton.org/water/docs/limits.pdf>

#### 4.0 Field Procedures

Prior to sample collection, a round of water level measurements and sounded well depths will be collected from the leachate and monitoring wells planned for sampling, to facilitate groundwater elevation contour mapping.

Leachate and groundwater sample collection will be performed using the procedures identified in the Addendum to the Remedial Investigation/Feasibility Study Work Plan (WPA; CRA, 2000), as modified by the Additional Groundwater Sampling Work Plan. For leachate wells, this includes using a disposable polyethylene bailer to purge three well volumes, or until dry, followed by sampling. For groundwater monitoring wells, this includes using a low-flow bladder pump to purge until stabilized conditions of pH, temperature, conductivity, DO, ORP, and turbidity are observed, followed by sampling. Samples will not be filtered, except that groundwater samples to be analyzed for dissolved parameters will be collected using an in-line 0.45 µm filter. Where practical during monitoring well purging, the bladder pump intake will be positioned so as to coincide with the zone of expected highest permeability within the submerged portion of the screen. The determination of the zone of expected highest permeability will be based on monitoring well stratigraphic logs.

Field QC samples collected during the event will include field duplicates and field equipment rinsate blanks (1 per 10 investigative samples), matrix spike/matrix spike duplicate samples (1 per 20 investigative samples), and daily trip blank samples. Consistent with the requirements of the Quality Assurance Project Plan (QAPP; Appendix U of the WPA), leachate QC sampling will not be conducted. Samples will be shipped to TestAmerica of North Canton, Ohio for analysis.

The following summarizes the sampling and analysis program:

Type of Sample	Investigative Samples	QC Samples			
		Field Duplicates <sup>5</sup>	Rinsate Blanks <sup>5</sup>	MS/MSD <sup>6</sup>	Trip Blanks <sup>7</sup>
Leachate <sup>1</sup>					
NA Evaluation <sup>2</sup>	6	--	--	--	--
Disposal Characterization <sup>3</sup>	8	--	--	--	--
Groundwater <sup>4</sup>					
POC Compliance/NA Evaluation <sup>2</sup>	41	4	4	2	4
Disposal Characterization <sup>3</sup>	5	--	--	--	--

Notes:

<sup>1</sup> Leachate samples to be collected using disposable polyethylene bailers

<sup>2</sup> TCL VOCs, metals (As, Ba, Fe [T+D], Mn [T+D]), nitrate, sulfate, gases (ethane, ethene, methane)

<sup>3</sup> As, Cd, Cr (total and hexavalent), Cu, Pb, Hg, Mo, Ni, Se, Ag, Zn, PCBs, sulfate, sulfide, cyanide

<sup>4</sup> groundwater samples to be collected using low-flow bladder pump

<sup>5</sup> 1 per 10 investigative samples

<sup>6</sup> 1 per 20 investigative samples

<sup>7</sup> TCL VOCs, 1 sample per day of VOC sample shipment

Purge fluids and decontamination fluids will be containerized and characterized for off-Site disposal by Clean Water Ltd in Dayton, OH.

## 5.0 Reporting

Following receipt of data from the laboratory, the POC compliance/NA evaluation data will undergo quality assessment and validation. Quality assessment and validation is not necessary for the disposal characterization data, given that it is outside the scope of the QAPP and not required by regulation.

Groundwater POC compliance will be assessed through comparison to MCLs/background and plotted on databox figures to facilitate comparison to previous data.

The NA potential will be evaluated consistent with previous evaluations of NA at the Site and in accordance with the procedures presented in the USEPA's Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater (USEPA, 1998)<sup>2</sup> and the USEPA's OSWER Directive on the use of NA (USEPA 1999)<sup>3</sup>.

Disposal characterization data will be compared to the City's proposed discharge limits, to aid in determining the potential need for pretreatment under a leachate extraction and disposal scenario.

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<sup>2</sup> USEPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water, Office of research and Development, Washington, DC, EPA/600/R-98/128, September.

<sup>3</sup> EPA OSWER Directive Number 9200.4-17P entitled "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites" dated April 1999.

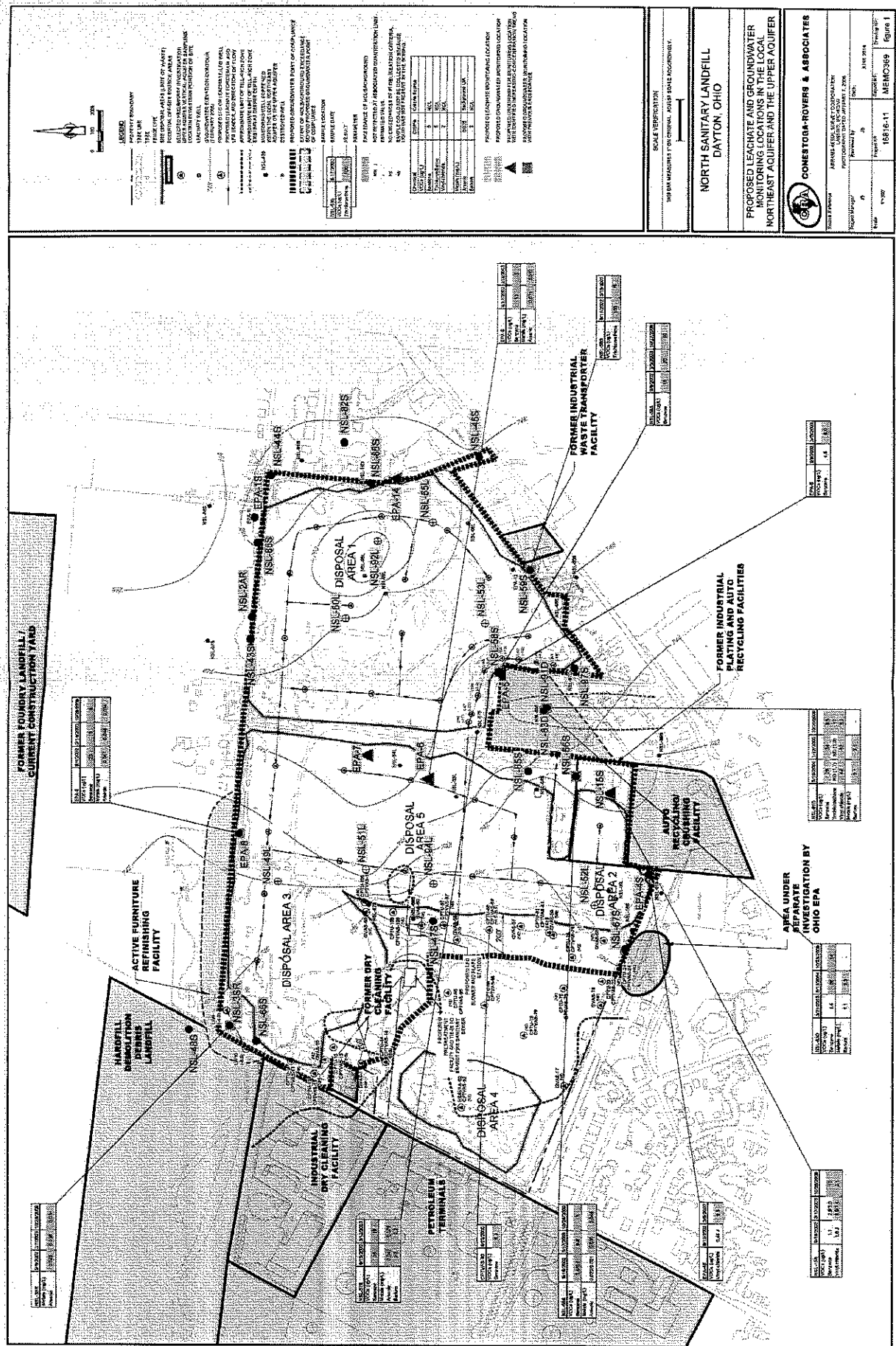






TABLE 1  
MONITORING LOCATIONS  
NORTH SANITARY LANDFILL  
DAYTON, OHIO

Well ID	Off-Site Access Required	Owner (as of May 2003)	Lot #	Site Sector	RI Trend Analysis (2003)		Lost Sampled	Previous Groundwater MCL/Background Exceedances	Parameters		Rationale	
					Performed	Increasing Trends <sup>1</sup>			Compliance/ NA	Disposal/ Characterization		
Leachate Wells (8)												
NSL-50L	N	Area 1		May 2004	NA	0	0	Spatial coverage for NA evaluation and interior extraction disposal characterization				
NSL-50L	N	Area 1		Mar 2003	NA	0	0	Spatial coverage for interior extraction disposal characterization				
NSL-53L	N	Area 1		Mar 2003	NA	0	0	Spatial coverage for interior extraction disposal characterization				
NSL-52L	N	Area 2		Mar 2003	NA	0	0	Spatial coverage for NA evaluation and interior extraction disposal characterization				
NSL-49L	N	Area 3		Oct 2009	NA	0	0	Spatial coverage for NA evaluation and interior extraction disposal characterization				
NSL-51L	N	Area 3		Mar 2003	NA	0	0	Spatial coverage for NA evaluation and interior extraction disposal characterization				
NSL-54L	N	Area 3		Jan 2005	NA	0	0	Spatial coverage for NA evaluation and interior extraction disposal characterization				
Total						6	0					
Monitoring Wells - LNA (2)												
NSL-26R	N	Northeast		Oct 2009		0	0	Spatial coverage at POC, no previous trend analysis				
NSL-85S	N	Northeast		Oct 2009		0	0	Spatial coverage at POC				
Total						2	0					
Monitoring Wells - MA (24)												
EPA-6	N	Central	0	NI	BZ, As	0	0	Monitor previous trends in source area				
EPA-7	N	Central	0	BZ, CA, TCE, Fe (T+D), Ni		0	0	Monitor previous trends in source area				
NSL-43S	N	Northeast		Oct 2009		0	0	Spatial coverage at POC				
NSL-44S	N	Northeast		Oct 2009		0	0	Spatial coverage at POC				
NSL-82S	Y	DMHA	East	Oct 2009		0	0	Investigate previous trend at EPA-14				
NSL-86S	N	East		Oct 2009		0	0	Spatial coverage at POC				
EPA-17	Y	74637	Sherriff/Godlin	East	CA, Ba	0	0	Investigate previous increasing trends				
NSL-45S	N	Southwest		Mar 2003		0	0	Spatial coverage at POC				
NSL-39S	Y	74647	Evans	Southwest	ICE	0	0	Spatial coverage at POC, investigate previous exceedance				
NSL-97S	N	South		Oct 2009		0	0	Spatial coverage at POC, perimeter extraction disposal characterization				
NSL-38S	N	South		Oct 2009	BZ	0	0	Spatial coverage at POC, investigate previous exceedance, perimeter extraction disposal characterization				
EPA-25	N	South	0	CB, Ba		0	0	Monitor increasing trends				
NSL-55S	N	South		Oct 2009	BZ	0	0	Monitor increasing trends				
NSL-65S	N	South		Oct 2009	BZ, As	0	0	Spatial coverage at POC, investigate previous exceedances				
NSL-15S	Y	74626	Alford/Blairstown	South	CB, Fe (T+D)	0	0	Spatial coverage at POC, investigate previous exceedances and trends				
NSL-81D	Y	74159	Lance	South	BZ, VC	0	0	Investigate previous exceedances				
NSL-91D	Y	74159	Lance	South	BZ, VC, Ba	0	0	Investigate previous exceedances				
EPA-45	N	Southwest	0	CB	VC	0	0	Spatial coverage at POC, investigate previous exceedance and trend				
NSL-67S	N	Southwest		Mar 2003		0	0	Spatial coverage				
NSL-47S	N	West		Mar 2003		0	0	Spatial coverage at POC				
NSL-66S	N	Northwest		Oct 2009		0	0	Spatial coverage at POC, investigate previous exceedances at NSL-35R, perimeter extraction disposal characterization				
NSL-35R	N	Northwest	0		As	0	0	Spatial coverage at POC, investigate previous exceedance, perimeter extraction disposal characterization				
NSL-48S	Y	74586	Holopp	Northwest		0	0	Investigate previous exceedances at NSL-35R				
EPA-8	N	Northwest	0	Oct 2009	BZ, As	0	0	Spatial coverage at POC, investigate previous exceedances, perimeter extraction disposal characterization				
Total						24	5					
Monitoring Wells - MA (15)												
NSL-17D	N	Central	0	Fe (D)		0	0	Monitor increasing trends				
NSL-28D	N	North	0			0	0	Spatial coverage at POC				
EPA-20	Y	74617	Pitts	Northwest		0	0	Spatial coverage				
NSL-21R	N	Northwest	0		As	0	0	Spatial coverage at POC, investigate previous exceedance				
NSL-50	N	South	0	As, Fe (T+D)		0	0	Monitor increasing trends, spatial coverage				
NSL-80	N	South	0		Ba	0	0	Spatial coverage at POC, investigate previous exceedance				
NSL-41R	N	Southwest		Oct 2009		0	0	Spatial coverage at POC				
NSL-35D	N	Southwest	0	Mar 2003		0	0	Monitor increasing trends				
NSL-13D	N	Southwest	0	Mn (D)		0	0	Spatial coverage at POC				
NSL-44S	N	West	0	May 2004		0	0	Spatial coverage at POC				
NSL-11D	N	West	0	1,1-DCA, CB, cis-1,2-DCE		0	0	Spatial coverage at POC, investigate previous trends				
EPA-31	N	Northwest	0	Aug 2003		0	0	Spatial coverage				
NSL-41S	N	Northwest	0	Oct 2009		0	0	Spatial coverage at POC				
NSL-27DR	N	Northwest	0	Oct 2009		0	0	Spatial coverage at POC				
NSL-8D	N	Northwest	0	Mar 2003		0	0	Spatial coverage				
Total						15	0					
Grand Total Wells to be Sampled:						6	8					
Leachate						41	5					
Groundwater												

Grand Total Wells to be Sampled:

<sup>1</sup>Parameters with a Maximum Contaminant Level (MCL) or site-specific preliminary remediation goal (PLG).